

U.S. Department of Commerce, Patent and Trademark Office



INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

Application No.:	10/090,316
Filing Date:	March 1, 2002
First Named Inventor:	Peter G. Borden
Group Art Unit:	2877
Examiner Name:	Rosenberger, Richard A.
Confirmation No.:	5495
Attorney Docket No.:	BOX006 US

U.S. Patent Documents

*Examiner Initials		Document Number	Date	Name	Class	Subclass	Filing Date if Appropriate
R	92	6,400,454	6/4/02	Noguchi et al.	356	237	

Foreign Patent Documents

							Translation	
		Document	Date	Country	Class	Subclass	Yes	No

Other Art (Including Author, Title, Date, Pertinent Pages, Etc.)

Examiner:

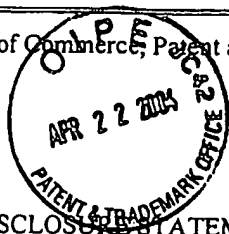
Richard A. Rosenberger

Date Considered:

6/1/04

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RM	1.	6,489,801	12/3/02	Borden et al.	324	766	
RM	2.	5,966,019	10/12/99	Borden	324	752	
RM	3.	5,377,006	12/27/94	Nakata	356	349	
RM	4.	6,323,951	11/27/01	Borden et al.	356	502	
RM	5.	6,426,644	7/30/02	Borden et al.	324	765	
RM	6.	5,042,951	8/27/91	Gold et al.	356	369	
RM	7.	5,159,412	10/27/92	Willenborg et al.	356	445	
RM	8.	5,181,080	1/19/93	Fanton et al.	356	381	
RM	9.	5,228,776	7/20/93	Smith et al.	374	5	
RM	10.	4,255,971	3/17/81	Rosencwaig	73	606	
RM	11.	4,579,463	4/1/86	Rosencwaig et al.	374	57	
RM	12.	4,632,561	12/30/86	Rosencwaig et al.	356	432	
RM	13.	6,049,220	4/11/00	Borden et al.	324	765	
RM	14.	6,483,594	11/19/02	Borden et al.	356	502	
RM	15.	5,652,716	7/29/97	Battersby	703	13	
RM	16.	5,761,082	6/2/98	Miura-Mattausch	703	14	
RM	17.	4,996,659	2/26/91	Yamaguchi et al.	714	736	
RM	18.	6,154,280	11/2/00	Borden	356	376	
RM	19.	6,054,868	4/25/00	Borden et al.	324	752	
RM	20.	5,883,518	3/16/99	Borden	324	752	
RM	21.	5,877,860	3/2/99	Borden	356	376	
RM	22.	5,978,074	11/2/99	Opsal et al.	356	72	
RM	23.	5,574,562	11/12/96	Fishman et al.	356	432	
RM	24.	6,169,601	1/2/01	Eremin et al.	356	239.8	
RM	25.	3,803,413	4/9/74	Vanzetti et al.	250	338	

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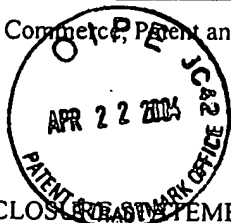
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<i>m</i>	26.	2002/0126732A 1	9/12/02	Shakouri et al.	374	130	
<i>RA</i>	27.	6,330,361	12/11/01	Mitchell et al.	382	211	
<i>R</i>	28.	4,201,087	5/6/80	Akita et al.	73	339	
<i>m</i>	29.	6,178,020	1/23/01	Schultz et al.	359	107	
<i>RA</i>	30.	5,128,864	7/7/92	Waggener et al.	364	413.2	
<i>R</i>	31.	5,304,931	4/19/94	Flamig et al.	324	309	
<i>R</i>	32.	2003/0036231A 1	2/20/03	Bhattacharva et al.	438	201	
<i>m</i>	33.	2002/0186045A 1	12/12/02	Cox	326	41	
<i>m</i>	34.	2003/96436A1	5/22/03	Satya et al.	438	11	
<i>R</i>	35.	2003/0155927A 1	8/21/03	Pinto et al.	324	501	
<i>m</i>	36.	6,489,624	12/3/02	Ushio et al	250	559.3	
<i>m</i>	37.	6,486,965	11/26/02	Kim	356	626	
<i>R</i>	38.	5,741,614	4/21/98	McCoy et al.	430	30	
<i>RA</i>	39.	6,327,035	12/4/01	Li et al.	356	432	
<i>m</i>	40.	5,454,004	9/26/95	Leger	372	99	
<i>R</i>	41.	6,281,027	9/28/01	Wei et al.	438	14	
<i>R</i>	42.	4,975,141	12/4/90	Greco et al.	156	626	
<i>R</i>	43.	6,395,563	5/28/02	Eriguchi	438	7	
<i>R</i>	44.	4,950,990	8/21/90	Moulder	324	224	
<i>m</i>	45.	5,667,300	9/16/97	Mandelis et al.	374	43	
<i>R</i>	46.	4,521,118	06/00/85	Rosencwaig	374	5	
<i>R</i>	47.	4,710,030	12/1/87	Tauc et al.	356	445	
<i>R</i>	48.	5,074,669	12/1/91	Opsal	356	447	
<i>m</i>	49.	3,909,602	9/30/75	Micka	235	151.3	
<i>R</i>	50.	5,430,548	7/4/95	Hirio et al.	356	394	
<i>R</i>	51.	5,764,363	6/9/98	Ooki et al.	356	364	

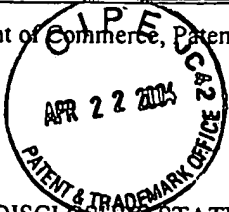
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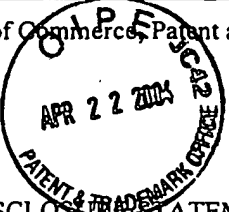
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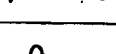
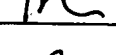
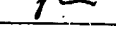
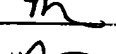
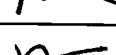
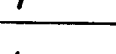
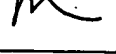

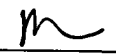



<i>RA</i>	52.	5,790,251	8/4/98	Hagiwara	356	351	
<i>RA</i>	53.	5,657,754	8/19/97	Rosencwaig	128	633	
<i>RA</i>	54.	4,634,290	1/6/87	Rosencwaig	374	5	
<i>RA</i>	55.	4,522,510	6/11/85	Rosencwaig	374	7	
<i>RA</i>	56.	4,243,327	1/6/81	Frosch et al.	356	432	
<i>RA</i>	57.	3,930,730	1/6/76	Laurens et al.	356	106	
<i>RA</i>	58.	4,455,741	6/26/84	Kolodner	29	574	
<i>RA</i>	59.	4,468,136	8/28/84	Murphy et al.	374	45	
<i>RA</i>	60.	4,466,748	8/21/84	Needham	374	129	
<i>RA</i>	61.	5,408,327	4/18/95	Geiler et al.	356	432	
<i>RA</i>	62.	4,795,260	1/3/89	Schuur et al.	356	400	
<i>RA</i>	63.	6,559,942	5/6/03	Sui et al.	356	369	
<i>RA</i>	64.	6,336,969	1/8/02	Yamaguchi et al.	117	7	
<i>RA</i>	65.	6,528,333	3/4/03	Jun et al.	438	16	
<i>RA</i>	66.	6,081,334	6/27/00	Grimbergen et al.	356	357	
<i>RA</i>	67.	3,462,602	8/16/67	Apple	250	83.3	
<i>RA</i>	68.	5,149,978	09/22/92	Opsal et al.	250	234	

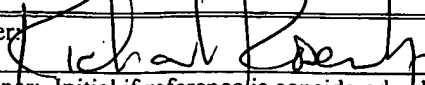
Foreign Patent Documents

							Translation	
		Document	Date	Country	Class	Subclass	Yes	No
<i>RA</i>	69.	97/08536	06.03.97	WO	G01N	21/00		
<i>RA</i>	70.	0 718 595	20.12.95	Europe	G01B			
<i>RA</i>	71.	2000009443A	1/1/2000	Japan	G01B			X
<i>RA</i>	72.	99/64880	16.12.1999	PCT	G01R	31/26		
<i>RA</i>	73.	05006929A	Jan-93	Japan	H01L	21/66		
<i>RA</i>	74.	00/07357	3/20/00	PCT	G01R	21/17		

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Other Art (Including Author, Title, Date, Pertinent Pages, Etc.)		
	75.	Jackson, "Classical Electrodynamics", John Wiley & Sons, Inc., (month unavailable), 1967, pp. 222-226
	76.	Rosencwaig et al. "Detection of Thermal Waves Through Optical Reflectance", Appl Phys. Lett. 46, June 1985, pp1013-1015
	77.	Rosencwaig, "Thermal-Wave Imaging", SCIENCE, Volume 218, No. 4569, Oct. 1982, pp.223-228
	78.	Opsal et al. "Thermal-Wave Detection and Thin-Film Thickness Measurements with Laser Beam Deflection", Applied Optics, Vol. 22, No. 20, Oct. 1983, pp. 3169-3176
	79.	Rosencwaig, "Thermal Wave Characterization and Inspection of Semiconductor Materials and Devices", Chapter 5 (pp. 97-135) of Photoacoustic and Thermal Wave Phenomena in Semiconductors, North Holland (month unavailable) 1987
	80.	"Process Monitoring System," Quantox Product Brochure, 3 pg, prior to June 10, 1998
	81.	J. Kolzer et al "Thermal Imaging and Measurement Techniques for Electronic Materials and Devices" Microelectronic Engineering, vol. 31, 1996 (month unknown) pages 251-270
	82.	C. Martinsons et al. "Recent progress in the measurement of thermal properties of hard coatings" Thin Solid Films, vol. 317, April 1998, 455-457.
	83.	S. Wolf and R. N. Tauber, "Silicon Processing For The VLSI Era", Volume 1, 1986, pages 388-399
	84.	Yaozhi Hu and Sing Pin Tay, "Spectroscopic ellipsometry investigation of nickel silicide formation by rapid thermal process", J. Vac. Sci. Technology, American Vacuum Soc. May/Jun 1998, pages 1820-1824
	85.	<u>Quality Today News</u> , article entitled "In-Line Metrology SEM System with 3D Imaging" dated January 10, 2000 and published at http://www.qualitytoday.com/Jan-00-news/011000-3.htm before April 4, 2001
	86.	Bristow, Thomas C. and Dag Lindquist, "Surface Measurements With A Non-Contact Nomarski-Profilng Instrument", Interferometric Metrology, SPIE vol. 816, August 1987, pages 106-110
	87.	Walter G. Driscoll and William Vaughan, "Handbook of Optics", 1978, pages 8-42, 8-43, 8-107, and 10-72 to 10-77
	88.	Charles Kittel, "Introduction to Solid State Physics", Fourth Edition, John Wiley & Sons, published prior to March 1, 2002, pages 262-264
	89.	Rolf E. Hummel, "Electronic Properties of Materials, An Introduction For Engineers", published prior to March 1, 2002, pages 137-145
	90.	H.S. Carslaw and J.C. Jaeger, "Conduction of Heat In Solids", Second Edition, published prior to March 1, 2002, pages 64-66
	91.	"Process Monitoring System", Quantox Product Brochure, 3 pages, published prior to March 1, 2002

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